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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,801	12/08/2003	Tatsuro Nagahara	FN4104US-CIP	8923

7590

05/18/2005

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70 Meister Avenue  
Somerville, NJ 08876

EXAMINER
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LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/728,801

Applicant(s)

NAGAHARA ET AL.

Examiner

Sin J. Lee

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,11-13,15 and 16 is/are rejected.
- 7) ☒ Claim(s) 4-6,8-10,14 and 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/806,852.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Previous 102(b) rejection on claims 1-19 over Nagahara et al (JP'069) is hereby withdrawn. As pointed out by applicants, PCT/JP99/05498 (foreign priority document of present application) claimed priority to the Nagahara et al. document.
2. Due to newly cited prior arts, the following rejections are made non-final.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 7, 11-13, 15, and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 12, and 14 of copending Application No. 10/110,656 in view of Chin et al (6,159,665).

Claims 6 of App.'656 teaches a photosensitive polysilazane composition comprising a polysilsesquiazane having a number average molecular weight of 100 to 100,000 and containing a basic constituent unit of  $-\text{SiR}^6(\text{NR}^7)_{1.5}-$ , in which  $\text{R}^6$  represents a  $\text{C}_{1-3}$  alkyl group or a phenyl group and  $\text{R}^7$  represents a H atom, a  $\text{C}_{1-3}$  alkyl

Art Unit: 1752

group or a phenyl group, and a photoacid generator. Based on this teaching, it would have been obvious to one skilled in the art to have the  $R^6$  to be a methyl group and the  $R^7$  to be a H atom with a reasonable expectation obtaining a photosensitive polysilazane composition. Therefore, Claim 6 of App.'656 renders obvious present invention of claim 1 except for the present photoacid generator, which is selected from the group consisting of a peroxide and a nitrobenzyl ester. Chin et al teaches a photosensitive materials including a nitrobenzyl ester photoacid generator (see title). Chin teaches that using a nitrobenzyl ester as a photoacid generator enhances sensitivity of a resist material (col.1, lines 66-67, col.2, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to use a nitrobenzyl ester as the photoacid generator in App.'656 in order to enhance sensitivity of the resist material as taught by Chin et al. Therefore, App.'656 in view of Chin would render obvious present inventions of claims 1-3.

Claim 12 of App.'656 teaches that the radiation sensitive polysilazane composition further comprise a sensitizing dye. Therefore, App.'656 in view of Chin would render obvious present invention of claim 7.

Claim 14 of App.'656 teaches a method forming a patterned inter-layer dielectric, which comprises forming a coating film of the radiation sensitive polysilazane composition, patternwise irradiating the coating film, dissolving and removing the irradiated part of the coating film, and leaving the residual patterned coating film in the ambient atmosphere or burning the coating film. Therefore, App.'656 in view of Chin

would render obvious present inventions of claims 11-13, 15, and 16 (the present claim language of claim 15 does not require the presence of the peroxide).

This is a provisional obviousness-type double patenting rejection.

5. Claims 1-3, 7, 11-13, 15, and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 7, 12, and 14 of copending Application No. 10/110,656 in view of Thackeray et al (US 6,300,035 B1)

Claims 6 of App.'656 teaches a photosensitive polysilazane composition comprising a polysilsesquiazane having a number average molecular weight of 100 to 100,000 and containing a basic constituent unit of  $-\text{[SiR}^6(\text{NR}^7)_{1.5}]_n-$ , in which  $\text{R}^6$  represents a  $\text{C}_{1-3}$  alkyl group or a phenyl group and  $\text{R}^7$  represents a H atom, a  $\text{C}_{1-3}$  alkyl group or a phenyl group, and a photoacid generator. Based on this teaching, it would have been obvious to one skilled in the art to have the  $\text{R}^6$  to be a methyl group and the  $\text{R}^7$  to be a H atom with a reasonable expectation obtaining a photosensitive polysilazane composition. Therefore, Claim 6 of App.'656 renders obvious present invention of claim 1 except for the present photoacid generator, which is selected from the group consisting of a peroxide and a nitrobenzyl ester. Claim 7 of App.'656 teaches a triazine type compound as a photoacid generator. Thackeray teaches the equivalence of a triazine type compound and a nitrobenzyl ester compound as photoacid generators used in a photoresist composition (see col.7, lines 62-65 and claim 1). Therefore, it would have been obvious to one of ordinary skill in the art to use a nitrobenzyl ester as the photoacid generator in App.'656 (instead of the triazine type

compound) because the nitrobenzyl ester compound and the triazine type compound are art-known equivalents as photoacid generating compounds. Therefore, App.'656 in view of Thackeray would render obvious present inventions of claims 1-3.

Claim 12 of App.'656 teaches that the radiation sensitive polysilazane composition further comprise a sensitizing dye. Therefore, App.'656 in view of Thackeray would render obvious present invention of claim 7.

Claim 14 of App.'656 teaches a method forming a patterned inter-layer dielectric, which comprises forming a coating film of the radiation sensitive polysilazane composition, patternwise irradiating the coating film, dissolving and removing the irradiated part of the coating film, and leaving the residual patterned coating film in the ambient atmosphere or burning the coating film. Therefore, App.'656 in view of Thackeray would render obvious present inventions of claims 11-13, 15, and 16 (the present claim language of claim 15 does not require the presence of the peroxide).

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

6. Claims 4-6, 8-10, 14, and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

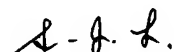
Claims of App.'656 do not teach or suggest present polysiloxazane of claims 4 (and claim 14) nor the present peroxide photoacid generator of claim 5. Also, claims of App.'656 do not teach or suggest present sensitizing dye of claims 8 and 17 nor the present oxidation catalyst of claims 9 and 18.

Art Unit: 1752

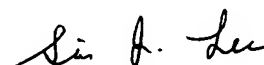
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee  
May 15, 2005



**SIN LEE**  
**PRIMARY EXAMINER**